

### **REMARKS**

Claims 1-10, 12, 13, 18-37, and 43, as amended, and new claims 44-45 are pending in this application. Claims 41-42 have been cancelled. In this Response, Applicant has amended independent claims, 1, 28, and 37 to clarify features of the present invention. In addition, various claims have been amended to correct formalities.

In light of the Office Action, Applicant believes this amendment serves a useful clarification purpose, and is desirable for clarification purposes, independent of patentability. Accordingly, Applicant respectfully submits that the claim amendments do not limit the range of any permissible equivalents. As no new matter has been added, Applicant respectfully requests entry of these amendments at this time.

### **PREVIOUSLY ALLOWABLE SUBJECT MATTER**

In the non-final Office Action mailed January 24, 2008, the Examiner indicated that subject matter recited in claim 40 included allowable subject matter. To facilitate allowance, Applicants amended independent claims 1, 28, and 37 to include features previously recited in claim 40. In the present Office Action, however, the Examiner indicated that the subject matter recited in claim 40 is no longer allowable. As such, Applicants have amended independent claims 28 and 37 to remove the feature previously recited in cancelled claim 40.

### **THE REJECTIONS UNDER 35 U.S.C. § 103**

Claims 1, 4-5, 9-14, 17-18, 21, and 24-32 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Publication No. 2002/0173367 to Gobush ("Gobush '367") in view of U.S. Patent Publication No. 2004/0032970 to Kiraly ("Kiraly") and, in further view of U.S. Patent No. 5,575,719 to Gobush ("Gobush '719") for the reasons provided on pages 3-14 of the Office Action. In addition, claim 33 was rejected under § 103(a) as being obvious over Gobush '367, Kiraly, Gobush '719, and in further view of U.S. Patent No. 5,471,383 to Gobush (Gobush '383) as explained on page 14. The Examiner also rejected claims 2, 3, 34, and 36 under § 103(a) as being obvious over Gobush '367, Kiraly, Gobush '719, and further in view of U.S. Patent Publication No. 2002/0155896 to Gobush (Gobush '896) as provided on pages 15-16 of the Office Action. As discussed in greater detail below, no combination of these references renders obvious the pending claims.

With regard to independent claim 1 of the present invention, the primary reference cited by the Examiner, Gobush '367, discloses a monitor system that measures flight characteristics of an object using fluorescent markers. Gobush '367 at Abstract. The primary purpose of using fluorescent markers, as disclosed by Gobush '367, is so that the flight performance of a golf ball is not affected by the markers. *Id.* at Para. 0003.

The Examiner admits that Gobush, however, is deficient with respect to at least two features of the present invention: (i) a rotatable calibration fixture where the three dimensional positions of the contrasting areas are known relative to one another; and (ii) determining a location of impact of the golf ball on the club face with an accuracy of 0.10 inch. In an attempt to cure these deficiencies, the Examiner cited Kiraly and Gobush. These additional references, however, also fail to disclose the features of the present invention for the following reasons.

Kiraly generally discloses a single camera measurement system. Kiraly, ¶ 2. However, the calibration system of Kiraly uses a two-dimensional target (158) that includes marks (160) thereon. Kiraly, ¶ 0057 and FIG. 4. In other words, the target (158) of Kiraly lacks the three dimensional characteristics of the fixture claimed in the present invention. In support of the rejection based on Kiraly, the Examiner also cites Para. 0007, which provides a general description of a prior art calibration method. Applicant notes, however, that Kiraly explicitly teaches away from using such a calibration system. Kiraly, ¶ 0016.

The Examiner also cited Gobush '719 for its purported disclosure of determining a location of impact of the golf ball on the club face with an accuracy of 0.10 inch. This contention, however, has no support. In particular, Gobush '719 discloses a monitoring system that includes at least two camera units that acquire images of a field of view from different angles. Gobush '719 at Abstract and Col. 2, lines 62-66. Again, Gobush '719 discloses the use of two cameras, which is important to note because Gobush '719 has been relied upon by the Examiner for its purported accuracy in determining hit location. *Id.*

In other words, the accuracy of the monitor disclosed by Gobush '719 is derived from its use of two cameras. Indeed, Gobush '719 explicitly states that the location of dots in a field of view are determined based on the known geometric relationships between the cameras. *See, e.g.*, Gobush '719 at Col. 5, lines 20-34 and Col. 6, lines 38-50. Moreover, the accuracy of the present invention is achieved using a single camera, and thus it is impossible to use the teachings of Gobush '719 to

achieve the accuracy of the present invention. To repeat, Gobush '719 teaches away from combination with Gobush '367, which uses only a single camera. Moreover, a skilled artisan would not have been motivated to combine Gobush '719 and Gobush '367 because their teachings are incompatible.

In sum, the disclosures of Gobush '367, Kiraly, and Gobush '719 teach away from combination with one another. Specifically, Kiraly teaches away from combination with Gobush '367 because it seeks to monitor object movement without the use of calibration fixtures. Gobush '719, similarly, teaches away from combination with Gobush '367 and Kiraly because it specifically requires at least two cameras. Because claim 1 of the present invention recites a single camera unit, a skilled artisan would not have been motivated to combine Gobush '367, Kiraly, and Gobush '719 to arrive at the present invention.

Accordingly, Applicants submit that the Examiner's § 103 rejections of claim 1 and claims dependent thereon have been overcome.

*The Rejection of Claims 28-37 and 41-43 Based On Gobush '367, Kiraly, and Gobush '719*

While independent claim 1, discussed above, describes an exemplary apparatus of the present invention, independent claims 28 and 37 relate to exemplary aspects of the method of the present invention. Applicants submit, however, that the rejections of claims 28 and 37, and the claims dependent thereon, are also improper for at least the reasons discussed below.

As a threshold matter, Applicants note that claims 28 and 37 have been amended to remove the features previously recited in dependent claim 40, for the reasons stated above. In light of these amendments, Applicants submit that the Examiner's rejection of independent claims 28 and 37 based on Gobush '710 is moot.

The discussions of Gobush '367 and Kiraly set forth above are incorporated herein and are not repeated for the sake of brevity. In explaining the rejection of claims 28 and 37, the Examiner concedes that Gobush '367 fails to disclose steps (b), (c), (d), (e), (f), and (g). In an attempt to remedy this omission, the Examiner cites Kiraly for its purported disclosure of these steps. As support for this contention, paragraphs 0007 and 0057 are repeatedly cited. Accordingly, a brief discussion of these portions of Kiraly is appropriate.

Paragraph 0007 of Kiraly discusses a prior art method of calibrating a camera. Kiraly, ¶¶ 0006-0007. In particular, Kiraly states that one prior art method of calibrating includes using a

target with precise reference markers, each of which have a known geometry. *Id.* The target is imaged at two known positions to provide a set of calibration points in three dimensions. *Id.* Paragraph 0057, also cited by the Examiner, describes a calibration and alignment system and process that is actually used by Kiraly (as opposed to being prior art). Specifically, the calibration system involves taking two images of a two dimensional target that has marks (160) thereon.

A skilled artisan looking at the cited sections of Kiraly, or any other part of its disclosure, will readily understand that Kiraly is describing two different methods of calibrating a camera that involve taking pictures of marks positioned on a target. Kiraly is completely silent regarding placing a striking instrument in the calibration fixture at a first orientation, and capturing a first calibration image of the striking instrument and the calibration fixture, as recited by independent claims 28 and 37 of the present invention.

Additionally, claims 28 and 37 also recite that a second image of the striking instrument and the calibration fixture is captured from a second perspective view. This feature is also not disclosed or suggested by Kiraly. Even if, *arguendo*, the pivot point of the calibration fixture was obvious, there is nothing in Gobush '367, Kiraly, or Gobush '719 that suggests that cameras could be calibrated by capturing pictures of a striking instrument and a calibration fixture from two different perspective views.

In sum, Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness under § 103 for at least the reasons set forth above. Accordingly, reconsideration and withdrawal of the § 103 rejections is respectfully requested.

*The Rejection of Claims 2, 3, 33, 34, and 36*

As set forth above, Gobush '367, Kiraly, and Gobush '719, either alone or in combination, fail to teach or suggest the features of the present invention recited by the pending claims. Gobush '383 and Gobush '896 similarly fail to cure the deficiencies of Gobush '367, Kiraly, or Gobush '719. In other words, Gobush '896 and Gobush '383 fail to teach at least the following features of the present invention recited by the claims: (i) determining a location of impact of the golf ball on the club face with an accuracy of 0.10 inch; and (ii) taking images of a golf club and calibration fixture from two different perspectives.

In light of these deficiencies, Applicants submit that the Examiner's § 103 rejections of claims 2-3, 33-34, and 36 have been overcome. As such, reconsideration and allowance of the pending claims is respectfully requested.

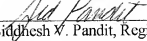
### **CONCLUSION**

All claims are believed to be in condition for allowance. If the Examiner believes that the present remarks still do not resolve all of the issues regarding patentability of the pending claims, Applicant invites the Examiner to contact the undersigned attorneys to discuss any remaining issues.

A Petition for Extension of Time is submitted herewith extending the time for response one month to and including November 1, 2008. No other fees are believed to be due at this time. Should any other fees be due, please charge them to Deposit Account No. 50-4545, Order No. 5222-034-US01.

Respectfully submitted,  
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